Training and Evaluation Outline Report

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Task Number: 05-PLT-5505

Task Title: Repair Underwater Structures

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Destruction Notice: None
Foreign Disclosure: FD1 - This training product has been reviewed by the training developers in coordination with the Fort Leonard Wood, MO foreign disclosure officer. This training product can be used to instruct international military students from all approved countries without restrictions.

Supporting Reference(s):

Step Number	Reference ID	Reference Name	Required	Primary
	ATP 5-19 (Change 001 09/08/2014 78 Pages)	RISK MANAGEMENT http://armypubs.army.mil/doctrine/DR_pubs/dr_a/pdf/atp5_19.pdf	Yes	No
	NTRP 4-04.2.8	Conventional Underwater Construction and Repair Techniques	Yes	Yes
	NTRP 4-04.2.9	Expedient Underwater Construction and Repair Techniques	Yes	No
	SS521-AG-PRO-010	U.S. Navy Diving Manual. Revision 6	Yes	No
	TM 3-34.72	PILE CONSTRUCTION (https://armypubs.us.army.mil/doctrine/DR_pubs/dr_b/pdf/tm3_34x72.pdf)	Yes	No
	TM 3-34.73	PORT CONSTRUCTION AND REPAIR	Yes	No

Conditions: Theelement is directed to repair underwater structures at a specified location. Reconnaissance information on the structure(s), all required tools and materials, and all assigned personnel are available. The location of the work site has a sea state of 3 feet or less, a current of 2.5 knots or less, and a depth less than 190 feet. Security is provided by the supported element.

Note: The Commander must still determine at what level of training they would want the element to perform. Crawl, walk or run. This can only be determined after consideration as to the units training level.

The Commander prior to evaluating an element in the conduct of the task must determine if it will be conducted in a Live, Virtual, or Constructive environment, additionally it must also be determined which condition as described below that the element will conduct the task. The selection made for this task is at a trained level of proficiency. The commander must determine which of the environments below will best suit the unit and the proficiency level at which the unit is. When conducting crawl or walk level training units should not increase the intensity until the unit has achieved the standards and then unit trainers should include variables that increase proficiency in all conditions.

Note: The condition statement for this task is written assuming the highest training conditions reflected on the Task Proficiency matrix required for the evaluated unit to receive a "fully trained" (T) rating.

Note: Condition terms definitions:

Dynamic Operational Environment: Three or more operational and two or more mission variables change during the execution of the assessed task. Operational variables and threat Tactics, Techniques, and Procedures (TTPs) for assigned counter-tasks change in response to the execution of Blue Forces (BLUFOR) tasks.

Complex Operational Environment: Changes to four or more operational variables impact the chosen friendly COA/mission. Brigade and higher units require all eight operational variables of Political, Military, Economic, Social, Infrastructure, Information, Physical environment, and Time (PMESII-PT) to be replicated in varying degrees based on the task being trained.

Single threat: Regular, irregular, criminal or terrorist forces are present.

Hybrid threat: Diverse and dynamic combination of regular forces, irregular forces, and/or criminal elements all unified to achieve mutually benefiting effects.

This task should not be trained in MOPP 4.

Standards: The team repairs the marine and waterfront structures in accordance with standards in approved references, unit Standing Operating Procedure (SOP) and the directive in order to extend the life of the facility not later than the time directed.

Note: Leaders are defined as the Commander, Executive Officer, First Sergeant, Operations Sergeant, Platoon Leaders, Platoon Sergeants, Squad Leaders, and Team Leaders.

Live Fire Required: No

Objective Task Evaluation Criteria Matrix:

Plan and Prepare			Execute						Assess
Operational Environment		Training Environment (L/V/C)	% of Leaders Present at Training/Authorized	% of Soldiers Present at	External Eval	% Performance Measures 'GO'	% Critical Performance Measures 'GO'	% Leader Performance Measures 'GO'	Task Assessment
SQD & PLT									
Dynamic (Single Threat)	Night	IAW unit CATS statement.	>=85%	>=80%	Yes	>=91%	All	>=90%	**T**
	Day		75-84%			80-90%		80-89%	**T-**
Static (Single Threat)	Night		65-74%	75-79%	No	65-79%			**P**
	Day		60-64%	60-74%		51-64%	<All	<=79%	**P-**
			<=59%	<=59%		<=50%			**U**

Remarks: None

Notes: All required references and technical manuals will be provided by the local command.

Safety Risk: Medium

Task Statements

Cue: None

DANGER

Voice communications between the divers and the dive supervisor is required when using scuba gear or surface-supplied diving gear with powered tools.

Leaders have an inherent responsibility to conduct Risk Management to ensure the safety of all Soldiers and promote mission accomplishment.

WARNING

Exercise extreme care while using any high-pressure cleaning systems. The water jet is capable of cutting skin and bones. Never point the jet at anyone, even underwater and even when it is presumed to be off.

Risk management is the Army's primary decision-making process to identify hazards, reduce risk, and prevent both accidental and tactical loss. All Soldiers have the responsibility to learn and understand the risks associated with this task.

CAUTION

Where practical, surface-supplied diving gear is preferable to scuba gear whenever working with powered tools.

Identifying hazards and controlling risks across the full spectrum of Army functions, operations and activities is the responsibility of all Soldiers.

Performance Steps and Measures

NOTE: Assess task proficiency using the task evaluation criteria matrix.

NOTE: Asterisks (*) indicate leader steps; plus signs (+) indicate critical steps.

STEP/MEASURE	GO	NO-GO	N/A
+* 1. The element leader prepares for the mission.			
+ a. Verifies that all critical information is available.			
+ b. Inspects reports and maintenance records, including the evaluation of the as-built drawings, to determine the critical area needing repair.			
+ c. Obtains any relevant information from local residents or agencies.			
+ d. Procures special equipment or material to perform the repairs.			
+ e. Plans the mission and completes the Operation Plan (OPLAN).			
+ f. Briefs team members.			
+ g. Inspects personnel and equipment.			
+ h. Supervises the repair of the marine structure.			
+ 2. The element repairs the structure.			
a. Removes marine growth from the structure.			
+ b. Repairs wooden structures from the mud line up to the base using one or more of the following techniques:			
(1) Replaces Polyvinyl Chloride (PVC) wrappings on piles / protective material.			
(2) Replaces or repairs damaged fasteners and strength members.			
(3) Repairs timber piles using concrete encasement.			
(4) Repairs timber piles using partial replacement techniques (posting or fishplating).			
+ c. Repairs steel structures from the mud line up to the base using one or more of the following techniques:			
(1) Repairs steel piles using partial replacement of the section.			
(2) Repairs steel piles using concrete encasement.			
(3) Repairs steel sheet piles using epoxy patches or welded steel patches.			
+ d. Repairs concrete structures from the mud line up to the base using one or more of the following techniques:			
(1) Repairs PVC wrapping on piles or protective material.			
(2) Repairs concrete piles using casement.			
(3) Repairs concrete sheet piles using epoxy grout.			
e. Records all repair data, including the type of material used and the location of placement on the structure.			
+* 3. The element leader supervises the repairs.			
+ a. Ensures that all critical areas are repaired.			
b. Ensures that all data is accurate and prepares records.			
+ 4. The element disassembles, performs Preventive Maintenance Checks and Services (PMCS), and properly stores the equipment.			
+* 5. The element leader forwards all pertinent data and any recommendations to the appropriate authority according to SOP.			

TASK PERFORMANCE / EVALUATION SUMMARY BLOCK							
ITERATION	1	2	3	4	5	M	TOTAL
TOTAL PERFORMANCE MEASURES EVALUATED							
TOTAL PERFORMANCE MEASURES GO							
TRAINING STATUS GO/NO-GO							

ITERATION: **1 2 3 4 5 M**

COMMANDER/LEADER ASSESSMENT: **T P U**

Mission(s) supported: None

MOPP 4: Never

MOPP 4 Statement: None

NVG: Never

NVG Statement: None

Prerequisite Collective Task(s):

Step Number	Task Number	Title	Proponent	Status
	05-CO-0007	Prepare an Operation Order (OPORD)	05 - Engineers (Collective)	Approved

Supporting Collective Task(s):

Step Number	Task Number	Title	Proponent	Status
	05-PLT-5504	Inspect Underwater Structures	05 - Engineers (Collective)	Approved
	05-PLT-5506	Maintain Underwater Structures	05 - Engineers (Collective)	Approved
	05-PLT-5509	Perform Self-Contained Underwater Breathing Apparatus (Scuba) Operations	05 - Engineers (Collective)	Approved
	05-PLT-5511	Clear Underwater Obstacles	05 - Engineers (Collective)	Approved
	71-CO-5100	Conduct Troop Leading Procedures for Companies	71 - Combined Arms (Collective)	Approved
5.	05-CO-0018	Conduct Report Procedures	05 - Engineers (Collective)	Approved

OPFOR Task(s):

Task Number	Title	Status
71-CO-8510	OPFOR Disrupt	Approved

Supporting Individual Task(s):

Step Number	Task Number	Title	Proponent	Status
	052-12D-1701	Rescue a Diving Casualty Underwater	052 - Engineer (Individual)	Approved
	052-238-1605	Set Up Arc Welding Equipment for Underwater Use	052 - Engineer (Individual)	Approved
	052-238-1606	Set Up Oxygen Arc-Cutting Equipment for Underwater Use	052 - Engineer (Individual)	Approved
	052-238-1626	Perform Underwater Weight-Handling Techniques	052 - Engineer (Individual)	Approved
	052-238-1630	Operate Arc Welding Equipment Underwater	052 - Engineer (Individual)	Approved
	052-238-1632	Operate a Hydraulic Power Unit	052 - Engineer (Individual)	Approved
	052-238-1633	Operate Hydraulic Tools Underwater	052 - Engineer (Individual)	Approved
	052-238-1635	Place Concrete Underwater	052 - Engineer (Individual)	Approved
	052-238-1639	Chart a Dive	052 - Engineer (Individual)	Approved
	052-238-1640	Operate a Diving Console	052 - Engineer (Individual)	Approved
	052-238-1642	Operate a Compressor	052 - Engineer (Individual)	Approved
	052-238-1645	Charge an Air System	052 - Engineer (Individual)	Approved
	052-238-2511	Direct the Setup of a Scuba Station	052 - Engineer (Individual)	Approved
	052-238-2512	Direct the Setup of a Surface-Supplied Dive Station	052 - Engineer (Individual)	Approved
	052-238-2517	Direct the Underwater Placement of Concrete	052 - Engineer (Individual)	Approved
	052-238-3411	Conduct a Predive Briefing of a Surface-Supplied Dive Station	052 - Engineer (Individual)	Approved
	052-238-3412	Select a Decompression Method	052 - Engineer (Individual)	Approved
	052-238-3413	Supervise a Scuba Dive Station	052 - Engineer (Individual)	Approved
	052-238-3414	Supervise a Surface-Supplied Dive Station	052 - Engineer (Individual)	Approved
	052-238-3416	Calculate Breathing Gas Requirements to Support Diving Operations	052 - Engineer (Individual)	Approved
	052-238-3431	Conduct a Predive Briefing of a Scuba Dive Station	052 - Engineer (Individual)	Approved
	052-238-4508	Prepare a Diving-Mission Operation Order (OPORD)	052 - Engineer (Individual)	Approved

Supporting Drill(s): None

Supported AUTL/UJTL Task(s):

Task ID	Title
ART 1.6.4	Provide Diver Support

TADSS

TADSS ID	Title	Product Type	Quantity
No TADSS specified			

Equipment (LIN)

LIN	Nomenclature	Qty
No equipment specified		

Materiel Items (NSN)

NSN	LIN	Title	Qty
No materiel items specified			

Environment: Environmental protection is not just the law but the right thing to do. It is a continual process and starts with deliberate planning. Always be alert to ways to protect our environment during training and missions. In doing so, you will contribute to the sustainment of our training resources while protecting people and the environment from harmful effects. Refer to the current Environmental Considerations manual and the current GTA Environmental-related Risk Assessment card. .

Safety: In a training environment, leaders must perform a risk assessment in accordance with ATP 5-19, Risk Management. Leaders will complete the current Deliberate Risk Assessment Worksheet in accordance with the TRADOC Safety Officer during the planning and completion of each task and sub-task by assessing mission, enemy, terrain and weather, troops and support available-time available and civil considerations, (METT-TC). Note: During MOPP training, leaders must ensure personnel are monitored for potential heat injury. Local policies and procedures must be followed during times of increased heat category in order to avoid heat related injury. Consider the MOPP work/rest cycles and water replacement guidelines IAW FM 3-11.4, Multiservice Tactics, Techniques, and Procedures for Nuclear, Biological, and Chemical (NBC) Protection, FM 3-11.5, Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Decontamination. .